4

PROSPECTUS AND SPECIMEN

OF AN

HISTORY

OF

MARINE ARCHITECTURE;

DRAWN FROM THE BEST AUTHORITIES,

AND CHRONOLOGICALLY DEDUCED FROM THE

EARLIEST PERIOD TO THE PRESENT TIME;

ILLUSTRATED BY UPWARDS OF ONE HUNDRED PLATES,

EXHIBITING AT LEAST

A THOUSAND FIGURES,

ACCURATELY ENGRAVED BY THE MOST EMINENT ARTISTS.

IN THREE VOLUMES ROYAL QUARTO.

BY JOHN CHARNOCK, ESQ.

LONDON:

PRINTED FOR R. FAULDER, BOND-STREET.

1796.

Digitized by Google

ADVERTISEMENT.

THE part here given as a PROSPECTUS is intended as the Specimen of a Work which has almoſt uninterruptedly engaged the attention of the AUTHOR for nearly twenty years. It is to be conſidered as merely exhibiting to the Public the Typography, the Paper, and the manner in which the different Claſſes of Engravings will be executed. As the Letter-preſs contains only an *abridged* account of the ANCIENT GALLEY, it would be an act of injuſtice to form any peremptory deciſion on the literary merit of the work itſelf. What is now publiſhed being an abbreviation of upwards of twenty ſheets, all the information it is meant to convey relates merely to the extent in which the ſubject will be treated through every different branch or æra.

THE Book, as ſtated in the Title Page, will be compriſed in three or *more* VOLUMES ROYAL QUARTO: the Price to SUBSCRIBERS will be NINE GUINEAS, to be paid, according to the uſual cuſtom, half at the time of ſubſcribing and the remaining moiety on the delivery of the firſt Volume. The Price to NON-SUBSCRIBERS will be TEN GUINEAS and an HALF; a demand which it is preſumed will not be thought extravagant by the Public, when they are informed the expence already incurred, added to the ſum neceſſary to complete the undertaking, will amount, on the moſt moderate computation, to upwards of Six Thouſand Pounds.

As ſuch an expence is too heavy to be riſked by any individual, however enthuſiaſtically attached to the ſubject, when the reception of all undertakings of this nature depends ſo much on the popular opinion of the moment, it has been deemed moſt prudent to adopt this eaſy method of collecting the general ſenſe, as to the utility of the intended

 work.

work. Suffice it for the preſent to ſay, the HISTORY will be continued down to the preſent moment, ſo that all the modern improvements and modes of conſtruction will be fully treated of and exemplified by accurate draughts, accompanied by proper explanations of all apparent defects, and an examination whether ſuch alterations as have actually been made, or are at preſent only theoretically propoſed, are calculated to effect the hoped-for remedy.

SHOULD the countenance given by the Public to this Undertaking be equal to the ſanguine expectations of the Proprietor, a Port Folio, containing a Set of large folding Plates, on a new conſtruction, will be added for the purpoſe of conveying, even to thoſe totally unacquainted with the ſubject, a comprehenſive idea of the ſhape and moſt approved form of veſſels adapted to different purpoſes: ſo that upon the whole, nothing, it is hoped, will be omitted that can render this work equally attractive to the Antiquarian, the Hiſtorian, and the Artiſt.

THE Book will be printed with all poſſible expedition as ſoon as Five Hundred Perſons have paid in their Subſcriptions, which will be received by the following BANKERS,

Meſſrs. HANKEY, HALL and Co. *Fenchurch-ſtreet*;
Meſſrs. NEWNHAM, EVERETT and Co. oppoſite the *Manſion-houſe*; and
Meſſrs. DORSETT and Co. *Bond-ſtreet*:

AS WELL AS BY

Mr. EGERTON, *Charing-croſs*; Mr. FAULDER, *Bond-ſtreet*; Mr. WHITE, *Fleet-ſtreet*; Mr. SEWELL, *Cornhill*, Bookſellers; and Mr. NEALE, *London-ſtreet, Greenwich*, who will reſpectively furniſh proper Receipts.

CHAPTER THE FIFTH.

The Ancient Galley.

SOON as the enterprifing, the reftlefs mind of man had overcome the firft terrors induced by adventuring on that element, which appeared as if defigned by nature to be the fixt, inſurmountable boundary to its deſires and ambition, it immediately endeavoured, with the utmoſt activity, to extend its views, and to apply thoſe diſcoveries to the deſtructive purpoſes of war and plunder, which in their origin promiſed to be productive, not only of a much more innocent, but even of an uſeful end. To this inordinate luſt of dominion and pillage, may be aſcribed the extenſion of marine architecture, and invention of the Galley, a ſpecies of veſſel peculiarly adapted to transfer to ſo unſtable an element thoſe ſcenes of furious conteſt which had hitherto diſgraced the land only, and to compel it, at leaſt to participate of all the horrors of war.

So ſpeedily was this purpoſe executed, that, as if by magic, the ocean was covered with immenſe fleets, ſent forth by different nations, and, without ſervilely imitating the pomp of eaſtern language, became literally dyed with the blood of the ſlain. The hiſtory of Rome, which has been tranſmitted to us leſs enveloped in doubt, fiction, and romantic improbability, than that of any other among the ancient kingdoms or ſtates, affords the ſtrongeſt example of the habitude or turn of mind which has, on every ſimilar occaſion, actuated the conduct of all nations, or collected bodies of men, even from the earlieſt times. The conqueſt of Italy being completed, its deſigns, its ambition, enlarged with its ſucceſs againſt the leſs powerful kingdoms, or petty republics, which ſurrounded it in its infancy, and the Roman navy, raiſed as by enchantment, transferred the horror of its arms to unoffending countries, whoſe remote ſituations might otherwiſe have promiſed them uninterrupted quietude, commerce, and peace.

So little are the accounts given by ancient hiſtorians to be depended on, ſo obſcure, ſo contradictory is the information they render us, that we dare not affirm with any certainty who was the bold adventurer, to whoſe daring ſpirit mankind owes, as a primary cauſe, this ever-to-be-lamented perverſion of the original uſe

to

to which the discovery of the buoyance of timber, particularly when excavated, was first applied.

Hercules, Perseus, Theseus, Prometheus, Janus, and many others among the fabulous deities, or demi-gods, are candidates for the honour of having it ascribed to them: nor must we forget the well known expedition of Jason, which appears to give him some pre-eminence among those whose well known predatory expeditions have entitled them to, or, we should rather say procured them, so much fame and renown. On this account Lucan, Seneca, Sallust, and several ancient authors, wish to have him considered as the parent of navigation, when the art became so extended as to deserve that term. Armais, the brother of Ægyptus, better known among the Greeks by the name of Danaus, who lived about the year of the world 2470, appears to have a still more defensible claim; as does Atlas, king of Mauritania, who was cotemporary with Abraham.

The pagan part of mankind held these renowned personages in the highest estimation; they regarded them as heroes, with love, admiration, and fear, during their lives; they worshipped them after their deaths as deities who had been sent to protect or instruct them.

There appears, however, a personage, who, if we may argue from reason, and the superior honours paid him, as with one consent, by the Greeks, Romans, and other heathen nations, had a still stronger title to the honour than any of those already mentioned. It is almost needless to say we advert to the fabulous god Neptune, the reputed son of Saturn and Ops, the brother of Jupiter and Pluto. There is much difficulty in deciding either as to the time in which he lived, or identifying who he in reality was; some, among whom is Vossius, supposing him to have been Japhet, the son of Noah; and others Rameses, king of Egypt, who lived in the year of the world 2670: Diodorus Siculus only affirms him, adhering to the heathen mythological account, to have been the god of the sea, and to have first brought navigation to its utmost limits of supposed perfection by the equipment of a fleet. "Τῶν ἄλλων θεῶν τῶν ἐκ Κρονȣ ϗ Ῥεας γενομένων φασιν οἱ Κρῆτες Ποσειδῶνα μὲν πρῶτον χρῆσασθαι ταῖς κατα θαλασσαν ἐργασίαις, ϗ ςολȣς σιςήσασθαι παραδόντες αὐτῶ την ἡγεμονιαν ταύτω του Κρόνȣ." Lactantius explains the nature of his appointment, if we may be allowed to use a term of such levity on so serious a subject, in the following manner. "De Neptuni sorte manifestum est, cujus regni tale fuisse dicimus, quale M. Antonii fuit infinitum illud imperium cui totius oræ maritimæ potestatem senatus decreverat ut prædones persequentur, ac mare omne pacaret sic Neptuno maritima omnia cum insulis obvenerunt."

There

There are, however, many circumſtances that contribute to warrant our inveſting Rameſes with this honour, nor need we inſtance a greater than that it is pretty clearly eſtabliſhed he was the individual perſonage who aſſiſted Laomedon in fortifying, with a wall, the city of Troy about the year of the world 2674. He is reported, in the fictitious allegory of thoſe early times, to have delivered the princeſs Heſione from a monſter, raiſed by ſome divine interpoſition out of the ſea, and to which ſhe was expoſed by expreſs command of the Oracle. The tragical concluſion of this ſtory, in which truth and romance contend with each other, is well known; Laomedon, refuſing a recompence equal to the expectations, or probably the deſerts of his former ally, was immediately involved in a war which ended in his deſtruction. The princeſs, his daughter, was beſtowed by her former deliverer on Telamon, the ſon of Æacus, who accompanied him, and was one of that renowned hord of freebooters claſſically known by the name of Argonauts.

It is extremely eaſy to ſtate, in the plain language of reaſon and common ſenſe, the developement of this fable. Rhameſes, or Neptune, a chief of reſtleſs diſpoſition, quitted his native country, incited either by a thirſt of diſcovery, or a luſt of acquiring by conqueſt the dominion of ſome foreign territory. Chance or inclination conducted him, and his followers, to that ſpot where their bravery as warriors, their ſkill in paſſing into a country by means then deemed præternatural by all not acquainted with them, procured them to be honoured, and feared as beings of a ſuperior, or divine rank. The marine monſter we may fairly conclude to have been a veſſel, conveying to the ſame ſpot ſome unknown adventurers equally bold, but who being leſs powerful, or leſs fortunate than themſelves, fell before them an eaſy, and inglorious conqueſt.

Contradiction in authorities, and the remote diſtance of time, render it difficult or impoſſible for moderns to fix the identity, and pre-eminence of any one perſon, but there can remain little doubt of the real cauſe why ſuch extravagant honours were paid to ſo many of that name. Neptunes, or gods of the ſea, were, not improbably, as numerous as the different nations who worſhipped them, each aſſuming to itſelf, as a deity, the perſonage whoſe power and whoſe faculties appeared to qualify him beſt for that honour. Princes or chieftains of the ſame deſcription and character making their way, by the ſame means, into remote countries, may well account for the multitude of them. This circumſtance too may well explain and reconcile the difference of opinion, both in reſpect to the true character and name of the perſon, as well as the time in which he flouriſhed. Let us reſt then

on

on this point. It certainly cannot be thought aſſuming too much to inſiſt, that the Neptune, or fabulous god of the ſea, among the different pagan nations, was either the bold ſtranger who had ſubdued them, by means they deemed preternatural, or their own powerful prince whom they deified in conſequence of his having delivered them, by the ſame ſuppoſed excellence, and ſuperior ſkill, from the ravage, and depredations of ſome reſtleſs invaders.

Minos, the ſecond of that name, king of Crete, appears to have been the firſt potentate who, under the degree of divinity, or at leaſt under the rank of a demi-god, equipped a fleet for the purpoſes of war, or colonization. Diodorus, Thucydides, Ariſtotle, and other ancient authors, all bear teſtimony to this fact. Diodorus ſpeaks in the following terms, "Κτήσασθαι δὲ λόγῳ καὶ δυνάμει ναυτικὴν μεγάλην, καὶ τῶν τε νήσων τὰς πλείους καθαρίψασθαι, καὶ πρῶτον τῶν Ελλήνων θαλατοκρατῆσαι." He is reported to have been maſter of a very powerful fleet, with the aſſiſtance of which, having firſt ſubdued many of the adjacent iſlands, he was the firſt Grecian prince who acquired to himſelf the dominion of thoſe ſeas. Ariſtotle confirms this evidence and aſſerts, τὴν θαλάσσης ἀρχην καθεσχεν ὁ Μίνως, καὶ τας νήσους, τὰς μὲν ἐχυρώσατο, τας δὲ ὤκισε. Minos became maſter of the ſea; he ſubdued ſeveral iſlands, and colonized others. We do not mean to prove he was abſolutely the firſt prince who brought the art of naval war to a regular ſyſtem: Cadmus, Bacchus and others, his predeceſſors, may, in point of antiquity, ſupercede his claim to that honour; but, as in conſequence of their power, theſe were conſidered deities, or demi-gods: they are accordingly not to be claſſed with an inferior perſonage, who never attained an higher rank in the opinion of mankind than that of a merely mortal potentate. The application of the art being once known to neighbouring ſtates or nations, who had made the greateſt progreſs in what is generally called civilization, they embraced the idea with avidity; and the experience of imperfections gave birth to daily improvement.

The perpetual feuds exiſting between the different Grecian republics afforded ample ſcope for practice in the art of naval war; and for ſome ages they appear to have been the moſt experienced of all nations inhabiting that part of the world then known. Carthage next preſents itſelf to our view as a riſing genius whom indefatigable application raiſed firſt into a competitor for equal fame, which in a very ſhort time ſhe might almoſt be ſaid to have totally engroſſed to herſelf. Her triumphs, her conſequence, were however but of ſhort duration: Rome, as we have already ſhewn, her unwearied and jealous rival, ſuddenly burſt forth with

an

an irreſiſtible rapidity, and in the end annihilated not only the naval power of Carthage but that of every country not too far diſtant to defy attack.

Hiſtorians and others have been ſo extremely vague, irregular and contradictory in the accounts they have offered us, not only as to the date of its origin but alſo of the particular form in which the Galley was conſtructed, that inveſtigation, were we to rely implicitly on them, would, if not impracticable, be at leaſt extremely difficult. In aid of this inquiry the curious have had recourſe to the very indeterminate information of coins, and ſuch remnants of ſculpture as the ravages of time, and the barbarous fury of invaders, have left to be treaſured up in the cabinets of the curious. The information they afford us, though founded perhaps on the moſt reſpectable evidence now exiſting, is at beſt extremely imperfect, we may almoſt as well imagine the whimſical figure intended to repreſent a ſhip, which is impreſſed on the gold noble of Edward III. can convey to us an idea of the kind of veſſels compoſing the fleet with which that monarch invaded France, as to ſuppoſe that of the Galley, exhibited on the coins of Rome, is to be conſidered a perfect, or in any degree proper ſemblance of one.

The moſt probable, the moſt rational explanation we have ever ſeen is given by a modern French author, M. L'Eſcalier. It ſolves many of thoſe ſtrange aſſertions made by the ancients of the magnitude of particular veſſels, which throwing an air of fiction and romance on their deſcriptions, conſequently induce us to doubt, if not totally diſcredit them. " We have for a long time (ſays he) treated as a kind of viſionary chimera, the account of three, four, five, and even eight tiers of oars, one above the other, by which the curious, who are unacquainted with naval matters, wiſh to explain the different appellations beſtowed on Ancient Galleys, called Triremes, Quadriremes, Quinquiremes and Octoremes: whoever has the ſmalleſt idea of, or will give himſelf the leaſt trouble to reflect on the ſubject, will very eaſily perceive the abſolute impoſſibility of any veſſel being able to carry even four rows, or ranks, of oars thus diſpoſed. In the modern Galleys, which have only one tier, and are in length equal to a ſhip carrying ſixty-four guns, the oars, though the ſupporting point or rowlock is as near the water-line as poſſible, are forty-four feet long. Allowing a ſpace of four feet and an half between the lower tier of row-ports, and that immediately above it, the oars of the ſecond muſt, purſuing this rule, be ſeventy-ſeven feet in length, thoſe of the third an hundred and ten, thoſe of the fourth one hundred and forty-three, &c." Where can we, as is judiciouſly remarked by this author, either find wood proper for the formation of theſe oars, or men powerful enough to uſe them? Even the third tier could not be managed well, were not the veſſel per-

fectly

fectly ſtrait, or, according to the Engliſh term, wall-ſided, and the oars of the lower rank extremely ſhort, ſo as to act on the ſurface of the water at a very ſmall diſtance from the ſide of the veſſel, in which caſe we muſt beg to remark it is very evident they could not be of any ſervice except in a dead calm.

Snelling, in his account of the celebrated Galley built by Philopater, king of Ægypt, informs us, " Remi longiores ad puppim inſerti: horum maximi cubitorum triginta octo, tractatu et remigio in uſu faciles, ob plumbum ad manubium additum:" " The oars, which were near the ſtern of the veſſel, were conſiderably longer than thoſe in the midſhips, the largeſt being thirty-eight cubits, or about fifty-ſeven feet in length: they were rendered more manageable by a quantity of lead attached to the handle." As to the Quadragintiremes, or veſſels uſually deſcribed as having forty ranks or tiers of oars, we cannot reconcile the report to our underſtandings, except by ſuppoſing them nothing more than Galleys fitted with as many oars in each rank. Thoſe who pretend to impoſe the former interpretation are certainly as ridiculous as an author in future ages would be, who attempted to prove, that a modern ſhip of war, mounting eighty guns, had as many tiers of cannon one above the other.

Some perſons who imagine they can ſolve this problem by ſuppoſing the oars of Ancient Galleys, were diſpoſed in diagonal ranks, or, to ſpeak more intelligibly, that the ſeats on which the rowers ſat, reſembled a flight of ſtairs, (the French call it en échiquier, like the chequers on a cheſs board) and that they were not, ſtrictly ſpeaking, one above the other, can underſtand nothing either of the conſtruction of veſſels, or the mode of working them. Do they recollect that the oars in the lower tier, or row, being placed as cloſe to each other as is poſſible to be effected in any given ſpace, allowing room to work them, it is impoſſible to introduce one at the intervallum, in the upper tier, or, according to the French phraſe, chequer wiſe, without loſing the advantage of that firſt rank, or tier; conſequently nothing would be gained by this pretended diſcovery. A circumſtance which militates ſtill more ſtrongly againſt this ſuppoſed mode of conſtruction is, that ſuch a diſtribution of the ſtages, or what may be called the decks of the veſſel, is incompatible both with its ſtrength, and thoſe communications through the ſeveral parts of the hull, or body, which are abſolutely neceſſary.

A third common ſolution of this perplexing ænigma is ſcarcely more ſatisfactory to us, although, perhaps, leſs unreaſonable and contradictory to ſome particulars which our own judgment is ready to admit the exiſtence of. The Biremes, ſay the advocates for this explanation, were thoſe veſſels in which each oar was managed

or

or worked by two men. The Triremes were Galleys in which three were employed for that purpoſe, in the Quinquiremes five, and, to conclude, in Octoremes eight men were allotted to execute the ſame ſervice. This explanation is at firſt ſight ſubtle enough to induce our acquieſcence in the propriety of it; but its fallacy is, nevertheleſs, on a cloſer inveſtigation, eaſy to be detected.

The Galeaſſes, uſed in the preſent days by the Venetians, which are by no means equal in point of ſize to the firſt rate galleys of the ancients, have nine men employed in working each oar; and, as a ſtill ſtronger refutation of the pretended explanation alluded to, in all the deſcriptions given of the latter by ancient authors, the words preciſely uſed are, "Remorum ordines et remigum gradus," words which certainly can bear no alluſion to the number of men employed at each oar.

After reading the ~~various treatiſes written with a view of elucidating this ſubject~~, after viewing the different deſigns collected with much care from the Roman antiquities for the ſame purpoſe, though they afford us in themſelves nothing decidedly ſatisfactory, we may boaſt of having in ſome meaſure developed from them, if not the abſolute truth, at leaſt a reaſonable ſyſtem or explanation. This is a matter of no ſmall difficulty: theſe learned diſſertations and inveſtigations, compiled chiefly from the labours and evidence of ancient ſculptors, who attended neither to exactneſs nor proportion, are extremely contradictory, and, for the moſt part, convey to us as falſe an idea of the Galleys of ancient times as the arms of the city of Paris, repreſented, in relief, on all the principal buildings of that capital, do of a modern ſhip of the line *.

It may probably not be unentertaining, ſays L'Eſcalier, to explain this idea more fully; even ſhould it be ~~deemed erroneous~~, it will be ſome conſolation to reflect it is not the firſt error the inveſtigation of this ſubject has given birth to; and as it is merely a matter of curioſity, the miſtake, if one, cannot be material.

The Uniremes, we ſuppoſe to have been thoſe galleys or veſſels which had only one row of oars extending between their maſts, or, perhaps, the entire length of the veſſel, like the modern feluccas of Barbary; and conſequently required only one rank of rowers.

The Biremes had one tier of oars between their maſts, and another abaft the main or principal maſt.

The Triremes appear to have been galleys of a ſtill more formidable deſcription than the preceding, having one tier of oars extending between the maſts, a

* A remark ſimilar to this we have already made ourſelves.

a ſecond abaft the main-maſt, and a third forward, near the prow or ſtem, before the fore-maſt.

The Quadriremes had their oars ranged like the Triremes, with the difference of having two tiers of oars one above the other abaft the main-maſt.

The Quinquiremes were alſo of the ſame deſcription, with the addition of a ſecond tier of oars forward.

The Octoremes had two tiers of oars in the mid-ſhips and three at the ſtem and ſtern, making in the whole eight. We cannot deny that ſome veſſels had three entire tiers of oars; this is indeed eſtabliſhed to have been the caſe from the evidence of a multitude of ancient ſculptures: but we never find proof of any having been conſtructed with a greater number. With regard to Octoremes themſelves, they were enormous floating ſtructures, built merely for the purpoſes of luxury, and to gratify a ridiculous oſtentation, ſo unfit for war, or even navigation, that they could not venture to ſea without manifeſt danger. Of this deſcription was the celebrated galley of Philopater: ſuch alſo was that conſtructed by Archimedes, for Hiero, king of Syracuſe, and preſented to Ptolemy: and, laſtly, ſuch was that built in the reign of the emperor Claudius, which foundered, and was irrecoverably loſt in the port of Oſtia.

The foregoing explanation, which appears perfectly ſimple and conformable to reaſon, enlarges our idea of the marine, or naval force of the ancients, which has hitherto been very much miſrepreſented, or miſunderſtood. It is generally ſuppoſed that their ſhips or veſſels were extremely imperfect, and ill conſtructed; ſo that moderns have little, or, indeed, nothing to regret in the loſs of a perfect knowlege of the principles of an art rudely practiſed by theſe renowned predeceſſors: this idea is, in all probability, erroneous.

Is it to be conceived that a great commercial people, ſuch as were the Carthaginians and Phœnicians, who undoubtedly undertook long voyages, having doubled the Cape of Good Hope, as well as atchieved many other feats in navigation equally bold and extraordinary, ſhould not have been provided with veſſels well put together, and capable of effectually reſiſting the impetuoſity of the waves?

Can it be believed that rival nations, like Rome and Carthage, who for ſuch a length of time, and through a ſeries of wars, diſputed the empire of the ſea; or that Greece and Ægypt, who have left us ſuch evident and irrefragable proofs of their perfection, and ingenuity in every other art and ſcience, ſhould have made no progreſs in that of Naval Architecture? Have we, becauſe the art of navigation was imperfect, and that in conſequence of the non-diſcovery

of

of the compaſs the ancients ſeldom ventured out into the open ſea, any juſt reaſon to conclude their veſſels were bad ſailers, and difficult to be worked with promptitude and exactneſs? Their peculiar exigencies rendered well-conſtructed veſſels indiſpenſibly neceſſary to them, for to ſay nothing of the qualities or requiſites capable of reſiſting hurricanes or tempeſts, the neighbourhood of the coaſt is much more ſubject to be affected by ſudden guſts of wind than the open ſea, and the ſhore continually attended by ſhoals and ſhelves which are exceedingly dangerous, indeed deſtructive to ſhipping. It is an abſolute certainty that the ancients adapted a number of wonderful machines to the uſe of their marine, the very name and form of which we have, in many inſtances, totally loſt. The character of Archimedes, to whom the ancients were principally indebted for their mechanical diſcoveries and inventions, is too firmly eſtabliſhed to render their powers, wonderful as they were, a matter even of doubt. It is a well-known fact, that the Romans tranſported by ſea, from Ægypt to Rome, obeliſks, formed out of one ſingle piece, of a length and weight ſo enormous that it would be impoſſible to put them on board any modern ſhip whatever. It cannot moreover be denied that, in aid of their naval wars, they had a variety of reſources, and a degree of induſtry in expedients which have, indeed, become needleſs, ſince the diſcovery of gunpowder and the invention of cannon.

No author, Vegetius excepted, has afforded us any ſcientific information at all ſatisfactory relative to the ancient marine. He too wrote in a time* when the hiſtory of it was nearly loſt; for it is evident to all that it does not enjoy the ſame advantage with other ſciences, and is incapable of being tranſmitted, with perſpicuity, to poſterity, on account of that partiality of language and multitude of terms, unknown in every other branch of mechanical art which, by cuſtom, have become indiſpenſibly neceſſary in explaining this. We can nevertheleſs collect enough from this author to impreſs us with a favourable idea of their extenſive knowlege and ſkill in it; to his evidence we cannot refuſe joining the teſtimony of a crowd of ancient hiſtorians, and the deſcriptions, vague as they may in ſome inſtances be, which they afford us of the veſſels of their times. Theſe accounts, exaggerated as they certainly are in ſundry reſpects, inconteſtibly prove that many of the veſſels of antiquity were of dimenſions infinitely larger than modern ſhips, of what are called the line; to ſay nothing of the very ſplendid manner in which they were decorated, which indeed is little to our preſent purpoſe to notice. To conclude, we may venture to aſſert, as a certain fact, that the galleys of the

* The reign of the emperor Valentinian, about the year 380 of the Chriſtian æra.

ancients

ancients were longer than any modern ſhips of war, though very narrow, and much leſs raiſed from the ſurface of the water, if we except the Octoremes, veſſels with eight ranks, or, as ſome will have it, diſtinct tiers of oars."

Though the foregoing account is extremely ingenious, perhaps we may with juſtice ſay, the moſt ſo of any hitherto publiſhed; yet it is far from ſatisfactory in all points. Did not the expreſs term of *remigum ordines*, or tiers of rowers ſo frequently uſed in ancient accounts, ſtand in our way, the beſt ſolution that perhaps could be given to the difficulty would be to cloſe with the idea which has prevailed with many, that the term Trireme and Quinquereme, meant veſſels of ſuch claſſes as required three or five men to work each oar. This explanation, however, for the reaſon juſt given, will not bear us through, to our own ſatisfaction, as militating in direct oppoſition to a particular point in the ancient deſcription which is given us as peremptory. The Trireme and Quinquireme, but more particularly the former, occur as the moſt frequent claſs in general uſe; but, as has been already ſtated, were we to attempt eſtabliſhing any certain deſcription from the authority of Trajan's column, or any other of the moſt valuable remnants of antiquity, the table of dimenſions would be too ridiculous for the attention, or belief of a ſingle moment.

In proof of this aſſertion let us ſtate a few of them meaſured by the moſt accurate ſcale, a ſcale conſtructed on the datum which we think we have a right to aſſume, that the rowers were of the height of five feet ſix inches, and ſuch certainly cannot be objected to, as an unreaſonable ſuppoſition, or allowance. We muſt purſue the idea which though in ſome points the moſt reaſonable, is certainly in others highly extravagant. We ſhall ſuppoſe the tiers of rowers, to bring them ſtrictly under that deſcription, were ſeparated from each other by partial decks or thwarts, laid from one ſide of the veſſel to the other, and allow, in conformity with the ſuggeſtion of many ingenious men, that the rowers were diſpoſed checquer-wiſe, or on ſeats reſembling a flight of ſtairs.

Firſt then, the perpendicular height of the upper edge of the ſide taken at the mid-ſhip frame from the lower edge of the keel was, in a Trireme, depending on the proof juſt ſtated, only ſix feet three inches; the length, from the extremity of the ſtem, or cutwater, to the ſtern, including the rakes of each, ſixty-five feet; length by the keel fifty-ſeven; extreme breadth, nine feet only. The dimenſions of a Quinquireme, taken from the ſame boaſted authority, were equally ridiculous and repugnant to common ſenſe: in particular, the oars of the upper tier were ſeventy feet in length, and not two inches in diameter at the handle. What judg-

ment

ment then, or deſcription, can we frame, relying on the ſame authority, of thoſe veſſels which are reported to have been furniſhed with ſix, ſeven, eight, and ſo on through the different ranks or rates, up to thirty tiers of oars; and that of Ptolemy Philopater, which is ſaid to have been of ſtill greater magnitude? Of this ſhip Athenæus gives the following wonderful, and, to modern conceptions, incredible account in his fifth book. "It had forty ranks of oars, according to the common interpretation (τεσσαρακονῆρην ναῦν κατεσκεύασεν ὁ φιλοπάτωρ) was two hundred and eighty cubits in length, equal to about four hundred and twenty Engliſh feet, thirty-eight cubits or fifty-ſeven feet in breadth, from entrance to entrance, and nearly eighty feet in perpendicular height from the aft rail, or tafferel, according to the modern term, to the keel. It was furniſhed with four rudders or ſteering oars, forty-five feet each in length, and the longeſt of the oars with which it was impelled were, in length, equal to the extreme breadth of the veſſel. The crew conſiſted of upwards of four thouſand rowers, and four hundred, or, as ſome accounts ſay, three thouſand other perſons were employed in the different occupations of navigating ſo immenſe a floating fabrick."

Many objections are made by commentators and criticks to this account. If, ſay they, the height of the veſſel was forty-eight cubits, how could an oar only thirty-eight in length touch the water? But this is not the moſt forcible argument againſt the correctneſs of the above deſcription, for we may deduct at leaſt half that height, for the part of the veſſel under water, and the riſe of the tafferel above the upper-row ports, ſo that if, according to the ſuggeſtion raiſed by ſome, the oars were not in veſſels of that magnitude obliquely extended into the water, according to the idea and method with which we are moſt converſant, but were uſed as impellers, parallel to a perpendicular, raiſed from the keel to the centre of the deck, and worked by a handle fixed into it at a right angle, the length of the oar becomes ſufficient for the purpoſe it was intended to anſwer. But here again a freſh obſtacle ariſes in the impoſſibility of working thoſe impellers with effect, except by a rotatory motion, which is on many accounts abſurd to ſuppoſe, and even impracticable in the execution, except by the addition of ſome mechaniſm the principal of which we are totally unacquainted with. In ſhort, difficulties appear to multiply in proportion to any attempt at ſolving them, for, admitting the perpendicular height of the veſſel from the keel to have been no greater, and the deductions already ſtated, properly made, the diſtance between the center of one tier of row-ports and that immediately above it, ſuppoſing ſuch to have been their diſpoſition, could not have been more than eleven inches,

a cir-

a circumſtance that muſt completely convince us there is an error in ſome part of our calculation or deſcription.

Let us examine other attempts which have been made by inquiſitive men to unravel this ænigmatical problem in ancient mechanics. Some, we have already obſerved, ſuppoſing the veſſels were denominated from the number of perſons neceſſary to work the larger oars, others, with ſomewhat more propriety, inſiſting that the name of each different rate was derived from the number of oars in the tiers or ranks. Forcible objections may be advanced and inſiſted on againſt both; among the ſtrongeſt are the very words made uſe of by the ancients in their deſcriptions, theſe are "Remorum ordines, et remigum gradus," terms which the critics will not ſuffer us to apply in any other ſenſe than as ſignifying ſo many diſtinct rows, or tiers of oars. This explanation is, indeed, ſtrongly confirmed by the collateral diction and phraſes uſed by the ancient poets and others; Virgil in particular thus expreſſes himſelf in the fifth Æneid.

> "Ingentemque Gyas (*agit*) ingenti moli chimæram
> Urbis opus, triplici pubes quam Dardana verſu
> Impellunt, TRINO conſurgunt ORDINE remi."

The learned inſiſt with much peremptorineſs that the veſſel above deſcribed was a mere Trireme: but to this aſſertion we object that in that caſe, to call it a chimæra, an ingens moles, is a ridiculouſly affected and pompous phraſe in ſo great a poet, which we can ſcarcely ſuppoſe him to have been guilty of. As to what the term terni ordines appears to imply, we do not think it by any means eſtabliſhed on the boaſted evidence of coins and ancient ſculpture, that any veſſel had more than three complete and perfect rows of oars, ſo that, granting to antiquarians thoſe points they inſiſt on as poſitive evidence, the diſtinguiſhing terms of Quadriremes and upwards, muſt be referred to other regulations, or particulars relative to conſtruction with which we are not as yet very accurately acquainted.

The moſt plauſible ſuggeſtion that in all probability has hitherto been offered is, that the oars were, in veſſels of the largeſt ſize, diſpoſed in three ranks or rows extending from ſtem to ſtern. The row-ports, however, were not at equal diſtances from each other, as many have ſuppoſed, but in ranks, or, if we may be allowed the term, claſſes, conſiſting of four, or, in the largeſt veſſels, five each, with an interval nearly equal to that occupied by the ports themſelves, ſo that a veſſel of the firſt magnitude in ſome degree reſembled a modern three-decked ſhip, which ſhows the ſame arrangement of interſtices between its gun-ports. Purſuing this

this idea, we may place thirteen banks on the lower tier, as many in the ſecond, and fourteen in the third, allowing that addition for the advantage gained in length by the raking of the ſtem and ſtern. We have by this arrangement two hundred oars on each ſide; and, allowing on an average ten men to each oar, exact employment for the number of perſons our crew is ſtated to have conſiſted of. The length of the veſſel anſwers equally well to the foregoing ſcheme by a fair calculation of their diſpoſition, and the room requiſite to work the oars. We will ſuppoſe, for inſtance, five row-ports, at nearly ten inches each, to take up four feet, and the diſtance between each port to have been four feet alſo; this multiplied by thirteen, the number of banks in the lower tiers, will amount to two hundred and ſixty feet: to the intervals between the banks we allow ~~ten feet~~, and twenty for the diſtance between the fore part of the firſt bank and the bow, with the ſame allowance for the ſpace between the aftermoſt row-port and the ſtern; theſe, added together, amount exactly to four hundred and twenty feet. The ſame calculation and proportions will be found to hold perfectly conſonant to the dimenſions given of all the other rates, if it be granted that no veſſel under an Hexereme had more than one tier of oars.

Perplexing as this foregoing diſquiſition has invariably proved to all who have attempted to purſue it, we cannot expect to meet with better ſucceſs than thoſe very learned perſons who have preceded us in an enquiry, which has not proved ſatisfactory even to themſelves. Before we have overcome one difficulty, another ſtarts up with a ſtill more formidable aſpect, and precipitates into abſurdity thoſe points we have with much earneſtneſs laboured to eſtabliſh: compelling us to retract them with diſgrace, or obliging us to ſupport, on the beſt foundation we can find, thoſe theories of our own which have generally little to recommend them, but their novelty and bold contradiction of what had been ever before received as certain facts. We ſhall now therefore diſmiſs this part of our enquiry with obſerving, that we ſeriouſly continue beſt ſatisfied with our own ſtatement, at leaſt far as it regards veſſels of ſuch magnitude that their exiſtence appears incredible if not abſolutely impoſſible on any other ground. Purſuing the ſubject farther, if this ſyſtem ſhould be thought to militate againſt general opinion, when applied to veſſels in moſt common uſe, as the Quinquiremes and thoſe of ſtill inferior ſize, we beg to obſerve there does not perhaps exiſt any certain refutation of our opinion, nor ſhould we be very ready to admit the propriety of any, ſhort of ſome well-preſerved remnant of antiquity, with a ſufficient proof, either by inſcription or its own appearance,

of its being a repreſentation of ſome particular object of our doubt, and controverſy. It is a very old and trite maxim, but not leſs true, that we with difficulty comprehend mere deſcription; nor are we well ſatisfied with the exiſtence of any thing we do not actually behold.

The principal dimenſions of different claſſes of veſſels in uſe among the ancients, as well as of thoſe which were of ſuch extraordinary magnitude as to be extremely uncommon, and rarely conſtructed, have been tranſmitted to us with much apparent certainty, and preciſion. The celebrated Ægyptian veſſel, called the Iſis, was in length one hundred and eighty feet, in breadth forty-five, and in height, from the upper edge of the deck to the bottom of the well, forty-three feet. The well known ſhip of Hiero, king of Syracuſe, was of nearly four thouſand tons burthen. The rules of conſtruction in general uſe, for thoſe which were uſually employed as veſſels of burthen, were in the following proportion; their breadth twenty-five feet, their length one hundred. Thoſe Galleys which were intended entirely for the purpoſes of war were twice that length, but of the ſame breadth; nor can that very extenſive difference be deemed incredible, or even wonderful, when we have heard it reported, we believe too from good authority, that a lug-ſail veſſel, built a few years ſince for the purpoſe of carrying on a contraband trade in the Britiſh Channel, and conſequently conſtructed with as much attention to ſpeed as poſſible, being in length one hundred and ſeventeen feet, was at her extreme breadth thirteen only.

Meibomius gives us the following dimenſions of the ancient Roman Trireme, in length one hundred and five feet, in breadth eleven; but according to new regulations, adopted after the time of Julius Cæſar, they were only ninety in length, and ten in breadth: the Quadrireme was one hundred and twenty-five feet long and thirteen broad: the height of the Octoreme, as we are told by the the ſame author, meaſured, from the upper ſurface of the deck to the lower edge of the keel, eleven feet: the Hexereme nine. Their firſt requiſite was ſwiftneſs; on that principally depended the ſucceſs of all their naval encounters, and every other quality was of little conſequence to them. They ſeldom ventured far from the ſhore, or quitted their ports at thoſe ſeaſons when hurricanes, or weather ſufficiently tempeſtuous to endanger their ſafety, might reaſonably be expected; ſo that however ſtrange and improper a veſſel, of the proportions above given, may appear to modern artiſts, we cannot, on the cloſeſt inveſtigation, diſcover any thing ſo repugnant to the ſervice and uſes they were ſeverally intended for, as to induce our diſbelief or doubt of their exactneſs.

The

The original principles on which the contour or ſhape of the Galley of the ancients was formed, appear to have been wonderfully preſerved, and attended to even by the moderns, in the conſtruction of thoſe veſſels which not only bear the ſame name, but are, allowing for the alteration of naval tactics, intended for the ſame uſe. Even the faſhion and decorations of the parts intended as ornamental, bear no ſmall ſimilitude to thoſe of the moſt ancient date, a moſt convincing proof that the varied forms of veſſels in uſe, among different nations, are not merely arbitrary, or dictated by whim, but that reaſon and ſuppoſed propriety, according to different exigencies, have firſt ſuggeſted a ſyſtem, from which ſubſequent experiment and improvement have not produced any very material deviation.

The reſemblance juſt alluded to will furniſh us with the beſt way of accounting for that long adherence to a particular mode of conſtruction which has divided, as it were into diſtinct claſſes, the ſhipping of different nations. The flat floor, the broad fore body, as well as ſtern of the Hollander, appear as peculiarly adapted to the ſhallow harbours where they belong, and thoſe rude ſhocks to which they are perpetually expoſed in navigating the North Sea, as the ſharper and ſwifter ſailing veſſels of the leſs inhoſpitable climates do to thoſe countries where ſuch precautions are unneceſſary, and would conſequently be ridiculous.

The Auguſtan age has been claſſically held up as the ſummit of perfection in poetry, in painting, and, to ſpeak generally, as well as comprehenſively in every branch of learning, art, or ſcience. Though we are little inclined implicitly to aſſent to every commendation, the enthuſiaſtic and learned admirers of antiquity certainly deem it a ſpecies of hereſy to doubt, yet in the particulars of that ſcience or ſubject we are at preſent diſcuſſing, we cannot but candidly confeſs the moderns appear to have but little room to boaſt either of fertility in their inventions, or novelty in their improvements. The points deemed by the moſt ſcientific and ingenious men as eſſentially neceſſary to the ſwiftneſs, the ſtability, and the ſafety of a veſſel, qualities comprehended in one well-known term of art, "being a good ſea boat," are ſuppoſed to be produced by good attention to the following particulars: a length of mid-ſhip body, the abſence of hollow water lines, and what is called a good bearing, all theſe were points minutely attended to as well by the Romans as their cotemporaries and rivals.

After the empire had reached to its greateſt extent, and ſubdued even to annihilation every maritime power capable of contending with it, its attention

almoſt naturally grew torpid to the very ſyſtem of war, from whence its grandeur originally ſprung. The irruption of the Goths, an horde totally unacquainted with naval tactics, not only completed the downfall of the art itſelf, but conſigned to a temporary oblivion of no inconſiderable duration the very principles which directed and governed it. States were either progreſſively formed out of the ruins of this Leviathan of empire, or emancipated by their own exertions from its yoke: thus were a variety of intereſts diſcordant to each other again eſtabliſhed, which neceſſarily occaſioned a revival or renewal of the ſyſtem of naval war; a ſyſtem which, from the cauſe we have before ſtated, muſt be conſidered as a new exertion of the diabolical fancy of the human race originating, as we are in great meaſure authoriſed to adopt that term, about the fourteenth century. The firſt attempts were ſcarcely leſs rude than thoſe which, near two thouſand years before, had ſpread ſo univerſal a terror, and conquered almoſt from the influence of report: and we may from that time progreſſively trace the current of improvement from the ill-ſhaped, ill-equipped fleet of Edward the Third, to that highly improved ſtate in which we at preſent view it, and which many are ſanguine and vain enough to ſuppoſe the zenith of all perfection.

A little reflection and candid attention will convince us of the arrogance of this idea. The daily improvements ſuggeſted by experience and practice, added to the failure of as many viſionary and abortive ſchemes, may convince us, not only that we are not yet arrived at the ne plus ultra, but that we are at preſent but little converſant in the true principles of the art. The wonderful diſcoveries of the properties of the loadſtone and gunpowder rendered various alterations neceſſary in the original ſyſtem of naval architecture, and have connected with it a variety of arts, which, previous to that time, would have been deemed totally foreign and extraneous: it is therefore hardly fair to draw any parallel between the degree of perfection attained by the ancient and modern artiſts; both appear to have purſued the method of endeavouring the attainment of improvement by a progreſſive practice of different fanciful ſchemes, many of which have, in courſe failed, inſtead of properly attempting to acquire a knowledge of thoſe fundamental principles which, once known and eſtabliſhed, render ſtudy leſs irkſome by not only ſmoothing, but completely laying open the path to conſummate learning.

The total abſence of any ſcientific treatiſe on the conſtruction of veſſels, either Roman, Carthaginian, or Grecian, has, as we have already obſerved, rendered it extremely difficult to ſtate, with preciſion, thoſe principles ſuppoſed moſt conducive

ducive to perfection. The moſt perfect authority on which we have to rely is, that of the annexed draught, taken from the model of a Roman veſſel preſented by the late Lord Anſon to the Royal Hoſpital at Greenwich; the original, which is of marble, and was found in the Villa Mattea in the ſixteenth century, now ſtands before the church of Santa Maria in Rome, hence called Santa Maria Navicella. This curious, and, indeed, from the reaſons juſt given, highly valuable remnant of antiquity, has been hitherto very generally, though improperly, called the model of a Roman war Galley. This is by no means the caſe, Galleys of that deſcription, called by the Ancients, from their form, Naves Longæ, were ſtructures, in length by the keel, generally ſpeaking, equal to eight, and never leſs than ſix times their breadth: but the model to which we allude will be found not far exceeding four times its breadth; it is evident therefore that the veſſel here repreſented was certainly one intended for the tranſportation of warlike ſtores, proviſions, and troops, or, what demands the ſame requiſites, one built for the purpoſes of commerce.

However theſe might differ, more eſpecially in thoſe points we have juſt pointed out, from the Galleys intended ſolely for the purpoſes of war, we have no reaſon to doubt but that in other reſpects, that is to ſay in the ſhape or form of the bottom, no inconſiderable degree of ſimilitude was preſerved between them: we may on this ground, therefore, without preſuming too much on our authority, venture boldly to aſſert, that on examining the horizontal and perpendicular ſections, as well as the ſide elevation, better known by the technical term of the ſheer draught, it will be found that the ancients were perfectly of the ſame opinion with the moderns, as to thoſe principles and points of perfection in Naval Architecture, which ought to be held fixt, invariable, and never to be departed from.

END OF THE ABRIDGEMENT.

TO

TO THE PUBLIC.

I CANNOT permit the preceding pages to make their appearance without one or two curſory remarks, by way of anſwer to ſome objections made to this undertaking.

Firſt, on the ground of expence: I have been charged with affixing a price too enormous to be complied with. As this implies a conduct of a nature the moſt diſgraceful to a man profeſſing the ſmalleſt degree, not of liberality but of common honeſty, it is incumbent on me to anſwer it in the fulleſt terms, this I am perfectly enabled to do, and in very few words. It is ſtated in the advertiſement, that the expence attending the undertaking will amount to upwards of Six Thouſand Pounds: the fact I can clearly and decidedly prove, from my private accounts, to the ſatisfaction of any perſon or perſons who will take the trouble of calling on me to aſcertain it; and the *profits* may eaſily be calculated on multiplying the amount of the ſubſcription by 750, even ſuppoſing the ſale to extend to that number.

The perſons who have raſhly, and I might almoſt ſay indecently, hazarded this charge, appear to be totally unaware of the enormous, expences peculiarly attending an undertaking of this ſort; of the ſums to be neceſſarily and unavoidably expended in collecting materials, and forming them into a proper ſtate for the public eye; ſo that however lucrative ſuch a publication may be deemed by thoſe who are uninformed of the expence attending it, I may without any pompous diſplay of liberality or generoſity, venture to offer to any ſpeculator in literature, who will defray my actual expence, the entire property in this work, reſerving to myſelf a few copies in gratification of my own vanity, and to be beſtowed as a trivial acknowledgement to thoſe friends who have moſt liberally and generouſly aſſiſted me with their advice, their profeſſional knowlege, and the uſe of ſuch collections as they ſeverally poſſeſs.

The

The ſecond objection bears on me infinitely lighter; the importance of the undertaking I humbly conceive to ſtand proudly in the firſt claſs, for though it is peeviſhly inſiſted by ſome, that the form of a Carthaginian Galley, or the canoe of the Eſkimaux, is of little conſequence to the knowlege of Marine Architecture in our day, we hope nevertheleſs, from a careful conſideration of certain data, eſtabliſhed by the different draughts, and an accurate hiſtorical account of the purpoſes they were conſtructed to anſwer; the climate, the local ſituation, or other circumſtances they were applied to, added to a candid examination, whether and in what degree they became uſeful, may ultimately tend more to the true advancement both of the theory and practice, than a thouſand vague ſpeculations vented by the moſt profound mathematicians, who have nothing to ſupport their opinion but problematical deductions, and ſophiſtical arguments.

Every veſſel, of whoſe principles and properties, or, in one word, with whoſe conſtruction we are accurately acquainted, forms of itſelf a ſeries of experiments always intereſting and not unfrequently concluſive, more eſpecially if we are furniſhed with accurate information of the uſes to which it was directed, and its advantages or defects, when brought into application. A collection of ſuch materials cannot, in a ſcientific light, be otherwiſe than uſeful. It has been ſtated, as an objection to the publication of them, that ſuch information may be equally ſerviceable to our enemies as to ourſelves; yet, as it is too notorious, collections intended to anſwer the ſame purpoſes have been, on a variety of falſe pretences, clandeſtinely and extenſively made for the purpoſe of advancing private emolument, by conveying to foreign countries information almoſt treaſonable: that miſchief, whatever ill effects it may produce, has already taken place; and ſurely a collection of deductions publicly, fairly, and regularly made from actual experiments, for ſuch they may be ſtrictly called, cannot but, in great meaſure, palliate the evil, by bringing into general ſtudy a ſcience hitherto extremely abſtruſe and little underſtood; by reducing its laws and principles to certain determinate points; by occaſioning ſcientific ſecrecy (which by the way it is too abſurd to hope for) to be no longer neceſſary; and by conſequently rendering the machinations of foreigners, or the treachery of any individuals among ourſelves, of little avail.

What we have ſaid thus far relates only to what has hitherto been actually brought into practice; the objection to the publication of any theory, or train of experiments to eſtabliſh it, is ſtill more vague and unfounded. The art, however moderns may value themſelves on their knowlege and ſkill, is certainly in its

its infancy; the experiments which have been already made, or publiſhed to the world, have been inſufficient and inconcluſive; hence the true principles are at this day ſo unknown and indeterminate that ſcarcely two perſons are to be found who perfectly coincide in their opinions concerning them. The preliminary ſtep to improvement muſt be either the actual diſcovery of thoſe principles, produced by a long and philoſophical inveſtigation of them, or a regular and accurate ſeries of experiments, practically and carefully made on an elaſtic boat, or veſſel, capable of having its form varied at pleaſure; in ſuch a manner that the ſtudious enquirers may, by giving a different ſhape, diſcover which will anſwer their purpoſe moſt effectually in all points. The mode of conſtructing a veſſel adapted to this purpoſe will be hereafter fully explained; and I conceive that no better attempt can be made to ſtrike at the root of the obſcurity which at preſent inveſopes this art, unleſs we extend experiment to actual ſervice, and incur an expence which nothing leſs than the power of a nation would be able to defray.

Without dogmatically aſſuming an opinion which perhaps may militate in ſome ſmall degree againſt the ideas at preſent entertained by many ingenious and learned perſons, whoſe labours and reſearches I certainly hold in the higheſt veneration and reſpect, I humbly conceive that, however ſucceſsfully their reſearches may terminate in the inveſtigation of thoſe philoſophical, and at preſent unknown points which form the baſis of the art, they will not be able to draw determinate concluſions, without ſuperadding to their preſent very patriotic and honourable labours, a ſeries of experiments in ſome degree ſimilar to thoſe which I have juſt now ventured to point out.

I have the honour to be

the Public's moſt devoted and obedient ſervant,

PERRY-HILL,
March 11, 1797.

John Charnock.

PORTRAITS

OF

EMINENT NAVAL OFFICERS,

FAITHFULLY ENGRAVED FROM

ORIGINAL PICTURES;

WITH SKETCHES OF THEIR

LIVES AND CHARACTERS,

COLLECTED FROM THE MOST AUTHENTIC SOURCES.

OF all claſſes of Engliſh literature BIOGRAPHY ſeems, in our time, to be the favourite ſtudy. Among the infinitely various branches of the polite arts, engraving, and particularly the engraving of PORTRAITS, meets with moſt Encouragement. We have promiſcuouſly publiſhed the Lives, and exhibited the Perſons, of an infinite number of men and women of all ranks, from the Monarch to the Page, from the Princeſs to the Courteſan; but we have celebrated a multitude which ought to have been buried in oblivion, while we have overlooked a thouſand meritorious ſubjects. In that exceſſive refinement which frequently degenerates into abſurdity, we have condeſcended to tranſmit to poſterity the characters and figures of many who have been remarkable only for depraved minds or deformed perſons: ſuch Characters and ſuch Figures, frequently caricatured too into the bargain both by the artiſt and the author, are ſought after with eagerneſs, and uſurp unmerited places in the collections of the curious.

To

To rectify this capricious Humour, to cure this green ſickneſs of Connoiſſeurſhip, to correct theſe faults of omiſſion and commiſſion, is deſirable, if not important: and perhaps the beſt means of attaining thoſe objects might be by giving to the world the Portraits and Lives of eminent men, arranged in profeſſional claſſes. With this view, and in the fulleſt confidence of a favourable reception, the Proprietors of the work thus offered to the Public, propoſe to open the way to ſimilar Undertakings, by publiſhing the PORTRAITS and LIVES of the moſt remarkable of that Profeſſion, which, with ſuch unparalleled bravery, prudence and loyalty, guards at this day that proud rank of national ſuperiority originally founded on its ſplendid exertions.

CONDITIONS:

I. The Work to be publiſhed in Numbers, on Folio Medium Paper, Wire-wove and hot-preſſed.

II. Each Number to contain Six Portraits, engraved by Mr. R. Shipſter, late a Pupil to Mr. Bartolozzi, and Six Leaves of Letter-prefs.

III. The Prints to be of the ſame Size as that of the Firſt Earl of SANDWICH exhibited as a Specimen, and in every reſpect ſimilarly executed.

IV. The Price of each Number to be One GUINEA.

V. SUBSCRIPTIONS will be received by Meſſieurs FAULDER, Bond-ſtreet; EGERTON, Charing-croſs; RIVINGTON, St. Paul's Church-yard; and SEWELL, Cornhill.

V91
1541838

BIBLIOTECA NAZIONALE NAPOLI

J. Scott del.

Etched by R. Sluyter.

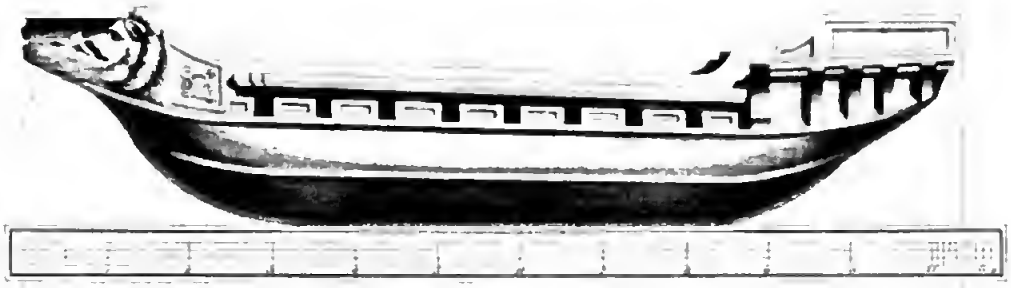
Specimens of Grecian and Roman Naval Architecture

from Coins and other Antique Originals

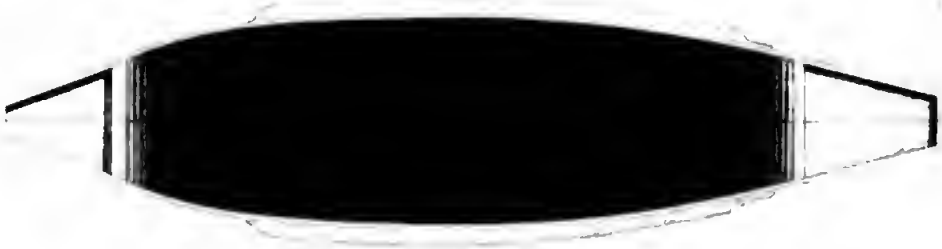
Publ.d as the Act directs Jan.y 31 1797 by R. Faulder Pearl Street

N.B. Outlines, or working Draughts of this, as well as every other Species of Veſſels, will be hereafter given.

Sheer draught or lateral elevation of a
ROMAN GALLEY *taken from the model presented to*
Greenwich Hospital by the Right Honble Lord Anson.



Plan



Elevations
Head and Stern

Midship Section

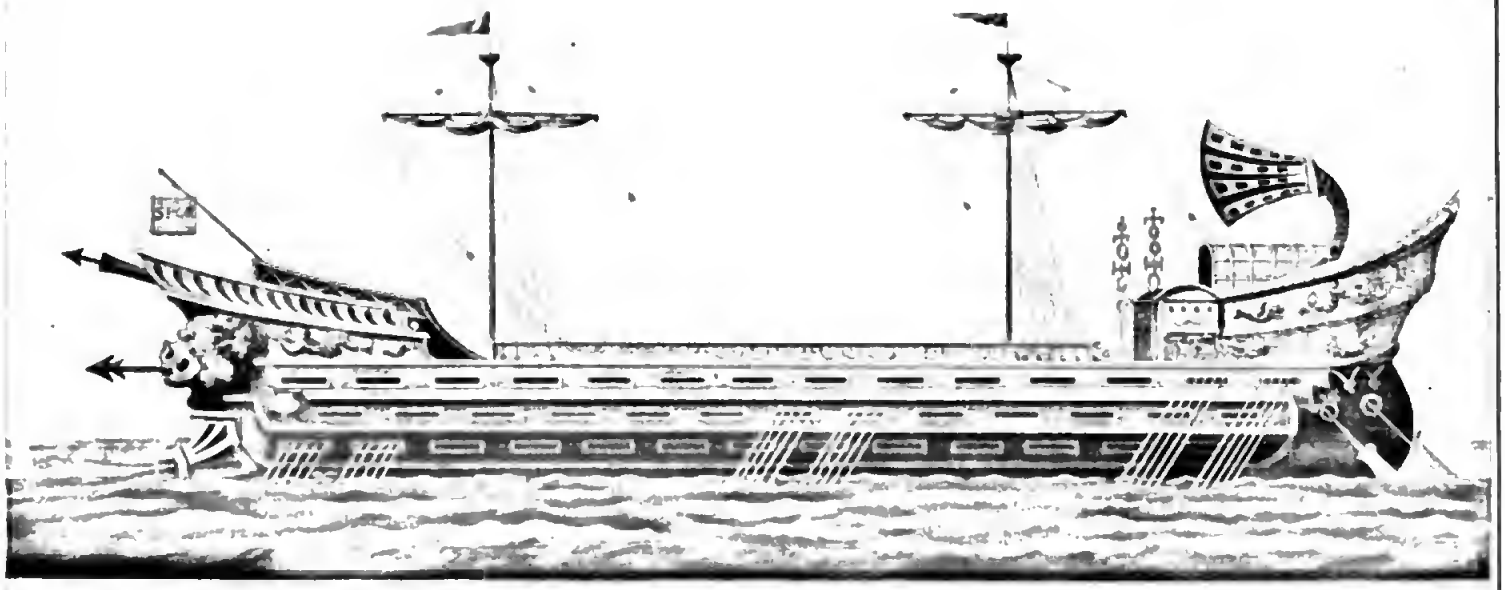
C. Tomkins sculp^t

Published as the Act directs Novr 10. 1790. by R. Faulder Bond Street

BIBLIOTECA NAZIONALE VITTORIO EMANUELE III NAPOLI

Digitized by Google

Supposed form of an ANCIENT GALLEY *of the first magnitude or late having forty banks of Oars.*



Scale of 10000 20 30 40 50 100 200 *Feet*

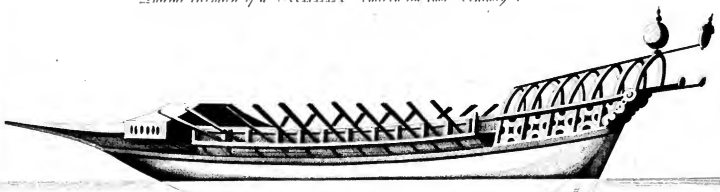
J. Charnock del.t *C. Tomkins sculp.t*

Published as the Act directs Nov.r 10 1796, by R. Faulder Bond Street.

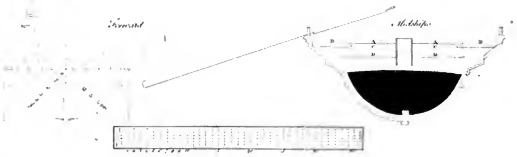
BIBLIOTECA NAZIONALE "VITTORIO EMANUELE III" NAPOLI

Digitized by Google

Lateral elevation of a GALLEY *built in the last Century.*

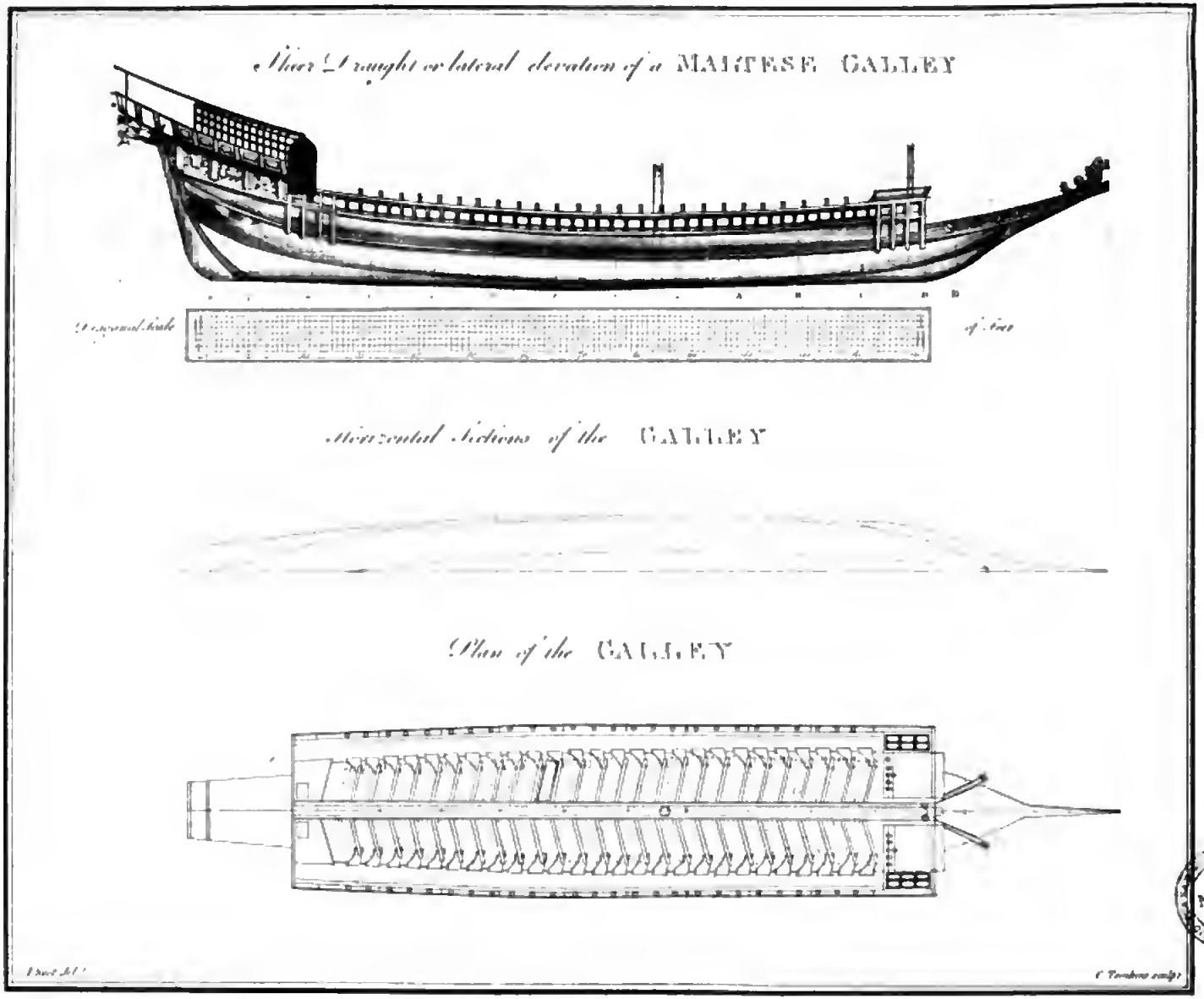


Perpendicular Sections of a modern MALTESE GALLEY



NAPOLI

Published as the Act directs Nov.r 10 1796 by R. Faulder Bond Street



Published as the Act directs Nov.r 1790, by R. Faulder Bond Street